



Telecom Regulatory Policy CRTC 2014-342

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Route references: Telecom Notices of Consultation 2012-686 and 2013-549

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9-1-1 action plan

The Commission identifies its 9-1-1 action plan, including key initiatives aimed at enhancing Canadians' access to existing 9-1-1 services and facilitating the transition to next-generation 9-1-1 services. While it would not be appropriate for the Commission to take the initiative to create a governance or policy body that would oversee the 9-1-1 system, collaboration between stakeholders in the context of a common forum could be very helpful in dealing with complex multi-stakeholder and technical issues. As part of its action plan, the Commission intends to address the following priorities and conduct the following activities:

- *reviewing the telecommunications regulatory framework for next-generation 9-1-1 service;*
- *improving the 9-1-1 caller location information provided to the call centres that receive 9-1-1 calls;*
- *reviewing the reliability and resiliency of 9-1-1 networks, including notification to 9-1-1 call centres of network outages that may affect them;*
- *educating consumers and supporting efforts to prevent accidental 9-1-1 calls;*
- *continuing to regulate certain 9-1-1 rates charged by incumbent local exchange carriers; and*
- *requiring telecommunications carriers to collect relevant 9-1-1 data and to provide it to the Commission.*

Introduction

1. Effective access to emergency services is critical to the health and safety of citizens, and is an important part of ensuring that Canadians have access to a world-class communications system. Over the years, the Commission has established policies to ensure the availability of reliable and effective access to 9-1-1 services in Canada.¹

¹ For example, last year the Commission mandated wireless carriers to provide access to a Text with 9-1-1 service for deaf, hard of hearing, and speech-impaired Canadians, and to implement a feature that enables 9-1-1 call takers to request an update of a wireless caller's location.

2. An estimated 96 percent of Canada's population currently has access to either Basic or Enhanced 9-1-1 service² through wireline, wireless, and voice over Internet Protocol (VoIP) telephone services. However, providing these services across Canada is complex and involves many interdependencies, and for this reason requires coordination between various stakeholders, including the Commission, telecommunications service providers (TSPs), and provincial/territorial and municipal governments.
3. The Commission, under the *Telecommunications Act* (the Act), regulates the provision of telecommunications services by TSPs. In the 9-1-1 context, the Commission's role is to exercise regulatory oversight over the telecommunications access provided by TSPs to enable Canadians to contact 9-1-1 call centres, also known as public safety answering points (PSAPs). This oversight includes determining national policies, standards, conditions of service, agreements, eligibility to operate, and approval of tariffs for telecommunications services.
4. Provincial, territorial, and municipal governments are responsible for emergency responders (such as police, fire, and ambulance) and for the establishment and management of PSAPs that dispatch them. In some cases provincial or territorial governments have delegated the responsibility for establishing and managing PSAPs and emergency response agencies to municipal governments.
5. In the coming years, the transition to Internet Protocol (IP)-based telecommunications network elements and equipment is expected to have a major impact on the provision of emergency 9-1-1 services across Canada.
6. Taking advantage of IP technology, next-generation 9-1-1 (NG9-1-1) services will provide callers with new ways to access emergency services from multiple devices and platforms. It is expected that in the future, Canadians will be able to interact with emergency service providers using, for example, text messaging, pictures, videos, and other means. In addition, technological changes are expected to help overcome limitations that exist in the current 9-1-1 system, such as in relation to determining the location of certain callers.
7. To the extent that the delivery of 9-1-1 services involves telecommunications services, the Commission will develop the appropriate regulatory framework to ensure that TSPs are well positioned to play their role in enabling Canadians to access 9-1-1 services that take advantage of these new capabilities. Accordingly, the Commission has outlined in its [Three-Year Plan](#) its intent to both enhance existing access to 9-1-1 services and conduct a comprehensive examination of NG9-1-1 services in 2015-16, which will include the establishment of the regulatory framework for implementing NG9-1-1, consistent with its mandate under the Act.

² Basic 9-1-1 service allows callers to be connected to call takers in specialized 9-1-1 call centres, also known as public safety answering points (PSAPs), who dispatch the appropriate emergency responders. Enhanced 9-1-1 service includes Basic 9-1-1 but also automatically provides 9-1-1 call takers with the telephone number and location of the caller.

8. With these goals in mind, the Commission has invited comments from the public on both 9-1-1 and NG9-1-1 issues. In December 2012, the Commission launched an inquiry into 9-1-1 matters,³ and in October 2013, it asked for comments on, among other things, the findings and recommendations contained in the Inquiry Officer's report.⁴ The Commission has taken into account the views expressed during these proceedings in developing an action plan regarding 9-1-1 services and formulating its conclusions in this decision.

National 9-1-1 forum

9. Certain parties, most notably some PSAPs and provincial/territorial and municipal governments, indicated that establishing a national 9-1-1 forum would be beneficial in coordinating 9-1-1 policies, priorities, standards, and timelines that are applicable to municipal and provincial/territorial governments, PSAPs, first responders, and TSPs. They added that such a forum could also address funding, education, and outreach issues.
10. As indicated above, the Commission, as per its mandate under the Act, is responsible for determining national policies for TSPs, including any 9-1-1 policies, standards, and requirements that are applicable to them. However, policies and standards for PSAPs and first responders are determined by municipal or provincial/territorial governments, and are generally not coordinated across the country.
11. Some PSAPs and provincial/territorial governments submitted that because PSAPs are established and funded at the provincial/territorial or municipal level, it is important to ensure that appropriate PSAP 9-1-1 policy development and implementation frameworks are in place in all provinces/territories, before there is any attempt to coordinate such policies at a national level. Some service providers indicated that any national 9-1-1 forum should be created with legislative authority or it will not be successful, and that there is a need to be careful not to overburden TSP and PSAP 9-1-1 experts who already participate in the CRTC Interconnection Steering Committee's Emergency Services Working Group (ESWG).
12. Saskatchewan Telecommunications submitted that it and the Government of Saskatchewan do not support the creation of a national 9-1-1 forum. In their view, the 9-1-1 system in Saskatchewan is working well and does not require an additional level of governance such as a national forum.
13. Parties noted that the ESWG is an effective forum and works well under its mandate as a technical working group that brings together various 9-1-1 stakeholders to improve the 9-1-1 system. The ESWG develops solutions for resolving 9-1-1 technical and operational issues, and coordinates the implementation of new 9-1-1

³ See Telecom Notice of Consultation 2012-686.

⁴ See Telecom Notice of Consultation 2013-549 and [A Report on Matters Related to Emergency 9-1-1 Services](#), 5 July 2013.

features or capabilities. However, the ESWG's mandate does not include the determination of 9-1-1 governance or policy issues.

14. Parties generally were of the view that the Commission should not create or lead any proposed national 9-1-1 forum, but should participate in it consistent with its mandate.
15. Given that its jurisdiction is limited to TSPs, the Commission considers that it would not be appropriate for it to take the initiative to create a governance or policy body that would oversee the 9-1-1 system as a whole, including provincial/territorial or municipal PSAP or first responder policies and standards. However, collaboration between stakeholders in the context of a common forum could be very helpful in dealing with complex, multi-stakeholder, and technical issues. For example, the ESWG will continue to bring together multiple stakeholders to develop solutions, standards, and processes related to the technical and operational implementation of 9-1-1 services in Canada.
16. The Commission notes that some PSAPs, first responders, and provincial/territorial governments proposed the use of an existing federal/provincial/territorial forum, such as the Senior Officials Responsible for Emergency Management (SOREM) committee.
17. The Commission would welcome greater coordination on 9-1-1 matters, particularly between provincial/territorial and municipal governments, such as through a national 9-1-1 forum. The Commission would be prepared to participate in any such forum, consistent with its mandate.

Commission's 9-1-1 action plan

18. As part of its consultations, the Commission has heard from many 9-1-1 stakeholders (including individual Canadians, first responders, carriers, PSAPs, and provincial/territorial and municipal governments) with respect to 9-1-1 issues within its jurisdiction that it should be addressing. In line with its long-term objective of contributing to continuous improvement in the quality of access to 9-1-1 services for Canadians, the Commission intends to address the following priorities and conduct the following activities identified by stakeholders and falling within its jurisdiction:
 - reviewing the telecommunications regulatory framework for NG9-1-1;
 - improving the 9-1-1 caller location information provided to PSAPs;
 - reviewing the reliability and resiliency of 9-1-1 networks, including notification to PSAPs of network outages that may affect them;
 - educating consumers and supporting efforts to prevent accidental 9-1-1 calls;
 - continuing to regulate certain 9-1-1 rates charged by ILECs; and
 - requiring telecommunications carriers to collect relevant 9-1-1 data and to provide it to the Commission.

Proceeding to review the telecommunications regulatory framework for NG9-1-1

19. The transition to NG9-1-1 is expected to be complex and costly, to occur gradually over a number of years, and to have major impacts on the networks, systems, and arrangements used to provide 9-1-1 services. Implementing NG9-1-1 may require changes to the responsibilities of existing 9-1-1 stakeholders or the addition of new stakeholders, such as auto manufacturers (interaction with 9-1-1 service through telematics) or social media application providers, and changes to the existing 9-1-1 regulatory framework.
20. The Commission will therefore initiate a proceeding to review the telecommunications regulatory framework for NG9-1-1 as it pertains to the role of TSPs. The Commission expects to launch this proceeding in early 2016.
21. PSAPs submitted that some of the challenges they face in implementing NG9-1-1 include the following:
 - requirements for funding and budgets for new equipment;
 - the need to hire additional staff due to increased call processing times;
 - requirements for staff with knowledge of NG9-1-1 technology;
 - delineation of jurisdictional responsibilities for calls transferred to other PSAPs;
 - network and information security and reliability; and
 - exposure of 9-1-1 call takers to graphic images, which may be traumatic if they have not previously been exposed to such images.
22. In general, parties submitted that the policies and standards to be developed should address issues such as NG9-1-1 definitions, funding, reliability, security, liability protection, privacy, confidentiality, and data collection. For its part, the Commission will seek to ensure that the NG9-1-1 proceeding provides a framework pursuant to which Canadian telecommunications networks, systems, and related processes will be equipped to support NG9-1-1 as PSAPs become ready to implement these new 9-1-1 services.
23. In preparation for this upcoming proceeding, the Commission requests that the ESWG submit two status reports on the progress of NG9-1-1 implementation in Canada and abroad, the first by 31 December 2014 and the second by 31 December 2015. These reports should include information on NG9-1-1 standards, equipment, deployment, and network readiness.

9-1-1 caller location information

24. The timely provision of accurate location information is critical for PSAPs to be able to dispatch emergency responders to the location of an emergency as quickly as possible. NG9-1-1 is expected to provide PSAPs with 9-1-1 caller location

information sent from different devices connected to the IP networks. However, there will continue to be a need for complementary network- or device-based location determination systems before this information can be transmitted to the PSAPs.

25. The introduction of additional 9-1-1 communication methods creates new challenges for TSPs in terms of their ability to automatically detect a 9-1-1 caller's location and provide it to PSAPs. This ability is especially useful when the caller is unable to provide their location to the PSAP.

Wireless location accuracy

26. When wireless services were introduced, there was a need to provide 9-1-1 access to wireless users, but because these callers were accessing 9-1-1 services using mobile devices, their calls could not be associated with one fixed location. This situation made it a challenge for 9-1-1 service providers to determine the location of a 9-1-1 caller.
27. As a result of several Commission decisions, wireless carriers were mandated to estimate the location of a wireless 9-1-1 caller. This service was implemented in two phases, based on the evolution of location determination technology. In Telecom Decision 2003-53, wireless carriers were first required to implement wireless Enhanced 9-1-1 Phase I, in which a wireless 9-1-1 caller is connected to a PSAP that serves the area of the tower to which the calling wireless handset is connected. The 9-1-1 call taker is provided with the caller's telephone number, wireless service provider, and cellphone tower location, as well as the sector of the cell coverage area where they are located.
28. Subsequently, in Telecom Regulatory Policy 2009-40, the Commission required the implementation of Wireless Enhanced 9-1-1 Phase II. In addition to the Phase I information, Phase II includes the provision to the 9-1-1 call taker of the caller's estimated latitude and longitude (X and Y) coordinates using Global Positioning System (GPS) and triangulation technologies.
29. Parties submitted that while these technologies are often able to provide the 9-1-1 call taker with an accurate location, in some situations, such as in the case of calls placed from inside large buildings, the estimated location area provided may be too imprecise. They indicated that it would also be useful for call takers to receive a Z coordinate indicating height of the caller's location, in order to determine the floor number.
30. Parties acknowledged that there are significant technological barriers to overcome, and that location accuracy will improve incrementally over time. Many parties submitted that improving wireless accuracy should nevertheless remain a high priority for the Commission. They also noted that, at the time of the proceeding, the ESWG was examining wireless location accuracy issues and would be submitting a report to the Commission with recommendations expected to touch upon many wireless 9-1-1 location-related concerns raised during the proceeding.

31. Improving wireless location accuracy is a high priority for the Commission and for Canadians. The Commission is reviewing the associated ESG report and will be making a determination on its recommendations shortly. In addition, the Commission intends to explore other ways to improve the location information transmitted to PSAPs. For example, the Commission intends to initiate a fact-finding exercise in 2014/15 (i) to understand the penetration of GPS-enabled handsets, as the availability of this technology often leads to more accurate location information, and (ii) to assess the reliability and technical feasibility of providing PSAPs with a wireless subscriber's billing address for 9-1-1 purposes at the time of an emergency.

VoIP location information

32. When VoIP services were introduced in Canada, the Commission decided that TSPs providing these services must also provide access to 9-1-1 service to their VoIP customers.⁵ There are two main types of VoIP service: fixed and nomadic. Most VoIP users in Canada purchase fixed VoIP service, whereby calls are made from a fixed address. As a result, from a 9-1-1 perspective, fixed VoIP is similar to traditional wireline service in that it provides Enhanced 9-1-1 capabilities where available.

33. Nomadic VoIP subscribers are estimated to represent approximately 4 percent of wireline telephone users in Canada.⁶ Nomadic VoIP service is provided over the Internet using any high-speed Internet connection from any location. The portability of this service makes it a challenge for VoIP service providers to determine the location of a 9-1-1 caller. Since there currently is no viable technical solution to automatically identify a nomadic VoIP caller's location, only Basic 9-1-1 service can be provided to nomadic VoIP users.

34. The Commission has mandated that nomadic VoIP service providers set up emergency call centres, either internally or through a third-party operator, to receive 9-1-1 calls, request the caller's location, and then route the call to the appropriate PSAP serving that area. In addition, the nomadic VoIP service provider is required to automatically send to its emergency call centre the caller's telephone number and registered address, the latter of which is to be used as a last resort if the caller is unable to provide their location.

35. Some parties noted that, while the automatic provision of location information for nomadic VoIP 9-1-1 callers is important, (a) there is currently no technical solution available to provide this information, and (b) nomadic VoIP subscribers represent a small subset of Canadians. They submitted that this issue should therefore be given a low priority. Other parties submitted that the provision of location information for all 9-1-1 calls is important.

⁵ See Telecom Decision 2005-21.

⁶ See the CRTC [Communications Monitoring Report 2013](#)

36. In recent years, the Commission and 9-1-1 stakeholders have reviewed various proposed solutions to locate nomadic VoIP 9-1-1 callers; however, no alternatives to the existing nomadic VoIP 9-1-1 service have been found to be viable to date. As a result, the Commission has determined that the implementation of NG9-1-1 has the greatest potential to provide a long-term solution for determining the location of nomadic VoIP subscribers.⁷
37. The Commission therefore requests that the ESWG continue to monitor national and international technological developments in NG9-1-1 that could lead to a viable solution that would automatically provide a nomadic VoIP 9-1-1 caller's location to PSAPs. Specifically, the Commission requests that the ESWG, as part of the reports on NG9-1-1 to be filed at the end of 2014 and 2015, respectively, include an update on the potential of NG9-1-1 to support the provision of a nomadic VoIP 9-1-1 caller's location. Until a viable solution is developed that would allow VoIP service providers to make Enhanced 9-1-1 available to their subscribers, the Commission will ensure that these companies provide Basic 9-1-1 and inform Canadians about any limitations associated with their provision of 9-1-1 service.

Other action plan initiatives

38. In addition to the issues identified above, the Commission plans to examine other matters raised by parties in relation to 9-1-1, as well as any new issues that may arise in the future. The Commission will continue to work closely with ESWG participants to ensure that 9-1-1 issues are addressed in a timely manner. Some of the other matters raised by parties include
- 9-1-1 network reliability and resiliency;
 - prevention of accidental 9-1-1 calls (e.g. pocket dials); and
 - other priorities identified by parties.

9-1-1 network reliability and resiliency

39. Some interveners noted that the reliability of the 9-1-1 network is paramount, especially during major disasters. It was also noted that, as a result of significant 9-1-1 service disruptions in the United States due to hurricanes, a review was conducted in that country to identify 9-1-1 network vulnerabilities.
40. While there have been no similar large-scale 9-1-1 disruptions in Canada, it is important, as a preventive measure, to examine whether any vulnerabilities may be present in the Canadian network, in order to ensure continuous and uninterrupted operation of 9-1-1 services. In addition, some PSAPs submitted that they should be notified of network outages that could affect their operations.

⁷ See Telecom Decision 2010-387.

41. The Commission therefore plans to initiate a proceeding in 2014-15 regarding the reliability and resiliency of 9-1-1 networks in Canada in order to identify any vulnerabilities that could exist, including in the area of notification to PSAPs of network outages that may affect them. If necessary, the Commission will require action by TSPs to address any vulnerabilities.

Accidental 9-1-1 call prevention

42. PSAPs indicated that they currently receive a large number of accidental wireless 9-1-1 calls (e.g. pocket dials),⁸ which puts a strain on their scarce resources. Some PSAPs are conducting public awareness initiatives regarding this issue, in which they would like wireless carriers to participate.

43. Wireless carriers submitted that newer mobile devices generally do not have the capability to automatically dial 9-1-1, and carriers are working with device manufacturers to prevent accidental 9-1-1 calls from older devices that do have such capabilities. The Canadian Wireless Telecommunications Association noted that in recent months it has met with public safety officials to conduct research into which wireless device features most often result in these types of calls.

44. The Commission does not exercise regulatory oversight over mobile device manufacturers, but it intends to follow these developments closely. It will also conduct a fact-finding exercise to ensure that wireless carriers are educating consumers about ways to prevent accidental 9-1-1 calls, as part of their existing obligations.⁹ Moreover, the Commission will support public education efforts in this regard through its own communications.

Other priorities identified by parties

45. Some of the other matters raised by parties include the need for 9-1-1 funding, transparency regarding the use of 9-1-1 fees collected, and 9-1-1 data collection.

46. 9-1-1 service in Canada is currently funded by TSPs and by provincial/territorial and municipal governments. These governments are responsible for establishing and funding PSAPs, and for determining whether to source that funding from general tax revenues or by requiring TSPs to bill and collect a monthly 9-1-1 levy per subscriber on their behalf. Therefore, the funding of PSAPs is not within the Commission's jurisdiction.

47. Most TSPs recover their own costs for providing 9-1-1 service through their revenues from retail telephone service (i.e. not as a separate item on the bill), and a few TSPs charge their subscribers a separate 9-1-1 fee. The Commission has forbore from regulating retail 9-1-1 fees in Canada except for the fees charged by incumbent local

⁸ For example, E-Comm, the PSAP that serves Vancouver and Southern British Columbia, indicated that it receives approximately 70,000 pocket dialed calls each year.

⁹ See Telecom Decision 2003-53 for information on the obligations of wireless carriers.

exchange carriers (ILECs) in the few remaining non-forborne areas. Therefore, TSPs determine how to recover their 9-1-1 costs, at their own discretion.

48. However, the Commission does regulate the 9-1-1 rates that ILECs¹⁰ charge TSPs in order to recover their costs for providing 9-1-1 service access. These rates are charged through wholesale 9-1-1 tariffs. The Commission will continue to review and approve the ILECs' 9-1-1 tariffs to ensure that the rates charged are just and reasonable.
49. With respect to data collection, the Commission will request that carriers, as necessary, collect and provide 9-1-1 data that could assist it in making determinations on various matters.

Conclusion

50. With these important initiatives, the Commission's objective is to ensure that Canadian telecommunications networks are evolving at an appropriate pace to support Canadians' needs for effective access to 9-1-1 emergency services as part of a world-class communications system.

Secretary General

Related documents

- *Matters related to emergency 9-1-1 services*, Telecom Notice of Consultation CRTC 2013-549, 10 October 2013
- *Appointment of an Inquiry Officer to review matters related to 9-1-1*, Telecom Notice of Consultation CRTC 2012-686, 17 December 2012
- *Viability of proposals for the provision of E9-1-1 service for nomadic and fixed/non-native VoIP subscribers*, Telecom Decision CRTC 2010-387, 17 June 2010
- *Implementation of wireless Phase II E9-1-1 service*, Telecom Regulatory Policy CRTC 2009-40, 2 February 2009
- *Emergency service obligations for local VoIP service providers*, Telecom Decision CRTC 2005-21, 4 April 2005
- *Conditions of service for wireless competitive local exchange carriers and for emergency services offered by wireless service providers*, Telecom Decision CRTC 2003-53, 12 August 2003, as amended by Telecom Decision CRTC 2003-53-1, 25 September 2003

¹⁰ The ILECs currently own and operate the 9-1-1 network and databases in their respective serving territories. They are required to provide 9-1-1 service access to all other TSPs in their territory, based on tariffs and agreements approved by the Commission.